

Applicant: Berk et al.
For: Band Model Method for Modeling Atmospheric Propagation at Arbitrarily Fine Spectral Resolution

ABSTRACT

5 A radiative transport band model algorithm has been developed for prediction and
analysis of high spectral resolution radiometric measurements. Atomic and molecular line center
absorption is determined from finite spectral bin equivalent widths. A new mathematically exact
expansion for finite bin equivalent widths provides high accuracy at any desired spectral
resolution. The temperature and pressure dependent Voigt line tail spectral absorption
10 contributing to each spectral bin is pre-computed and fit to Padé approximants for rapid and
accurate accounting of neighboring-to-distant lines.